

Amended claims

Re: U.S. Patent Application No. 10/733,256
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1. A pump for mounting on a receptacle, comprising:

a pump body having at least one opening;

a moving assembly movable relative to the pump body and co-operating therewith to form a pump chamber of variable volume, the at least one opening allowing the pump chamber to communicate with an inside of the receptacle and allowing the pump to operate in a head-down position;

an air intake passage formed between the pump body and the moving assembly and capable of communicating with the opening of the pump body;

a first lip configured, after the moving assembly has moved away from a rest position in a substance-dispensing direction, to press in leaktight manner against the pump body and prevent communication between the inside of the receptacle and the pump chamber via the opening; and

a second lip situated above the first lip when the pump is observed in a head-up position, said second lip being configured to close the air intake passage when the moving assembly is in the rest position and to release the air intake passage when the moving assembly is displaced in the substance-dispensing direction,

wherein the moving assembly comprises at least one lip configured to press against the pump body to close the air intake passage when the moving assembly is substantially at the end of a substance-dispensing stroke.

August 10, 2005
Page 2

2. A pump according to claim 1, wherein each of the first and second lips is substantially frustoconical in shape, flaring toward the pump chamber.

3. A pump according to claim 1, wherein the moving assembly further comprises a third lip ~~configured to press against the pump body to close the air intake passage when the moving assembly is substantially at the end of a substance-dispensing stroke.~~ *<forms said lip>*

4. A pump according to claim 1, wherein ~~the pump body and the second lip~~ configured to close the air intake passage when the moving assembly is substantially at the end of a substance-dispensing stroke.

5. A pump according to claim 4, wherein the pump body further comprises a setback situated between two regions against which the second lip presses while the moving assembly is in at least one of a rest position or an end-of-stroke position, said setback providing communication between said regions while the moving assembly is in an intermediate position between a rest position or an end-of-stroke position.

6. A pump according to claim 1, wherein the moving assembly comprises a pushbutton and an insert fitted to the pushbutton, the pushbutton and the insert configured together to form a passage for delivering a substance contained in the receptacle, at least while the pump is actuated to dispense the substance.

7. A pump according to claim 6, wherein the moving assembly further comprises a third lip disposed to press against the pump body to close the air intake passage when the moving assembly is substantially at the end of the substance-dispensing stroke.

August 10, 2005
Page 3

8. A pump according to claim 7, wherein the first, second, and third lips are made on the insert.

9. A pump according to claim 6, wherein the pushbutton comprises a stationary portion which is stationary relative to the insert, and a movable portion which is movable relative to the insert.

10. A pump according to claim 9, wherein the insert and the movable portion comprise respective surfaces suitable for co-operating to close the passage for delivering the substance while the moving assembly is in the rest position.

11. A pump according to claim 9, wherein the insert and the moveable portion comprise respective surfaces suitable for opening the passage for delivering the substance once the moveable portion has moved through a determined distance relative to the stationary portion.

12. A pump according to claim 11, wherein the pushbutton is configured so that the movable portion can move relative to the insert through said determined distance from the rest position only once the force exerted on the pushbutton exceeds a threshold.

13. A pump according to claim 9, wherein the stationary portion and the movable portion of the pushbutton are interconnected by a web of elastically-deformable material.

14. A pump according to claim 13, wherein the web of material is annular in shape.

15. A pump according to claim 1, further comprising a resilient return element configured for returning the moving assembly into the rest position.

16. A pump according to claim 15, wherein the resilient return element is disposed outside the pump chamber.

August 10, 2005
Page 4

17. A pump according to claim 15, wherein the resilient return element comprises a helical spring working in compression.

18. A pump according to claim 15, wherein the resilient return element is made integrally with the pushbutton.

19. A pump according to claim 1, wherein the pump body is configured to receive a dip tube.

20. A pump according to claim 19, further comprising a check valve that closes while the volume of the pump chamber is decreasing and that opens while the volume of the pump chamber is increasing, said check valve usable to allow the pump chamber to be fed with substance via the dip tube.

21. A pump according to claim 1, wherein the moving assembly further comprises a delivery orifice situated on a side opposite from the opening about the axis of the pump.

22. A pump according to claim 1, wherein a volume of the pump chamber in the rest position is greater than a volume of a quantity of substance to be dispensed during a stroke.

23. A pump according to claim 6, further comprising a resilient return element usable to return the moving assembly to the rest position.

24. A pump according to claim 6, wherein the pushbutton is stationary relative to the insert.

25. A pump according to claim 24, wherein the insert comprises a skirt configured for co-operating in leaktight manner with a spike of the pump body when the pump is at rest, isolating the pump chamber from the outside.

August 10, 2005
Page 5

26. A pump according to claim 25, wherein the insert comprises a valve member usable for closing a top opening of the skirt while the volume of the pump chamber is increasing and for enabling substance to flow through a top opening of the skirt while the volume of the pump chamber is decreasing.

27. A pump according to claim 26, wherein, the valve member is housed entirely inside the skirt before first use of the pump.

28. A pump according to claim 27, wherein the valve member comprises a conical recess configured for co-operating with a conical portion of the spike.

29. A receptacle fitted with a pump according to claim 1.

30(1)(e) A pump for mounting on a receptacle, comprising:

a pump body having at least one opening;

a moving assembly movable relative to the pump body and co-operating therewith
<unique>
to form a pump chamber of variable volume, the at least one opening allowing the pump chamber
to communicate with an inside of the receptacle and allowing the pump to operate in a head-
down position;

an air intake passage formed between the pump body and the moving assembly
and capable of communicating with the opening of the pump body;

a first lip configured, after the moving assembly has moved away from a rest
position in a substance-dispensing direction, to press in leaktight manner against the pump body
and prevent communication between the inside of the receptacle and the pump chamber via the
opening; and

a second lip situated above the first lip when the pump is observed in a head-up
position, said second lip being configured to close the air intake passage when the moving
assembly is in the rest position and to release the air intake passage when the moving assembly is
displaced in the substance-dispensing direction.

31(*New*). A pump for mounting on a receptacle, the pump comprising:
a pump body, the pump body including a spike; and

a moving assembly including a pushbutton and arranged to co-operate with the pump body to define a pump chamber of variable volume, the moving assembly including a skirt via which substance present in the chamber can be delivered toward a dispensing orifice, the skirt being capable of co-operating with the spike when the pump is at rest in order to isolate the inside of the skirt from the pump chamber.

32(*New*). A pump for mounting on a receptacle, the pump comprising:
a pump body; and
a moving assembly that is movable relative to the pump body and that co-operates therewith to define a pump chamber of variable volume;

the pump having a moving assembly comprising a pushbutton and an insert fitted to the pushbutton, the pushbutton and the insert being arranged together to define a passage for delivering the substance when the pump is actuated to dispense the substance, and by the fact that the pushbutton comprises two portions, one of which is stationary relative to the insert and the other of which is movable relative thereto, the movable portion and the insert having respective surfaces suitable for co-operating to close the passage for delivering the substance when the moving assembly is in its rest position, and for disengaging the passage when the movable portion is moved through a determined distance relative to the stationary portion.